REMOVAL ACTION PLAN
FOR
CARRICO DRUMS
WASHINGTON, INDIANA

U.S. EPA ID: NONE
TDD: T05-9108-004
PAN: EIN0761SAA

OCTOBER 9, 1991

Prepared by: Steven J. Hare Date: 10-9-91
Reviewed by: John C. Wardline Date: 10-9-1991
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1.0 INTRODUCTION

The Ecology & Environment, Inc. (E & E), Technical Assistance Team (TAT) was tasked by the U.S. Environmental Protection Agency (U.S. EPA) to investigate and sample drums and contaminated soil at the Elmer Carrico Property in Washington, Daviess County, Indiana, under Technical Directive Document (TDD) T05-9108-004.

2.0 SITE DESCRIPTION AND BACKGROUND

The Elmer Carrico Drum (Carrico Drums) Site is located along the east and west sides of Bent Avenue in unincorporated Washington, Indiana (see Figure 1 for site location). The site is bordered on the east by Hawkins Cemetery and Wright Avenue, on the south by McCormick Avenue, on the west by Oak Grove Cemetery, and on the north by an alley and a ConRail railroad track. The site encompasses approximately 20 acres and lies in a primarily residential neighborhood (see site sketches Figures 2 - 4). At present, no perimeter fencing exists to prevent unauthorized access onto the property. The property is owned by Mr. Elmer Carrico of Washington, Indiana.

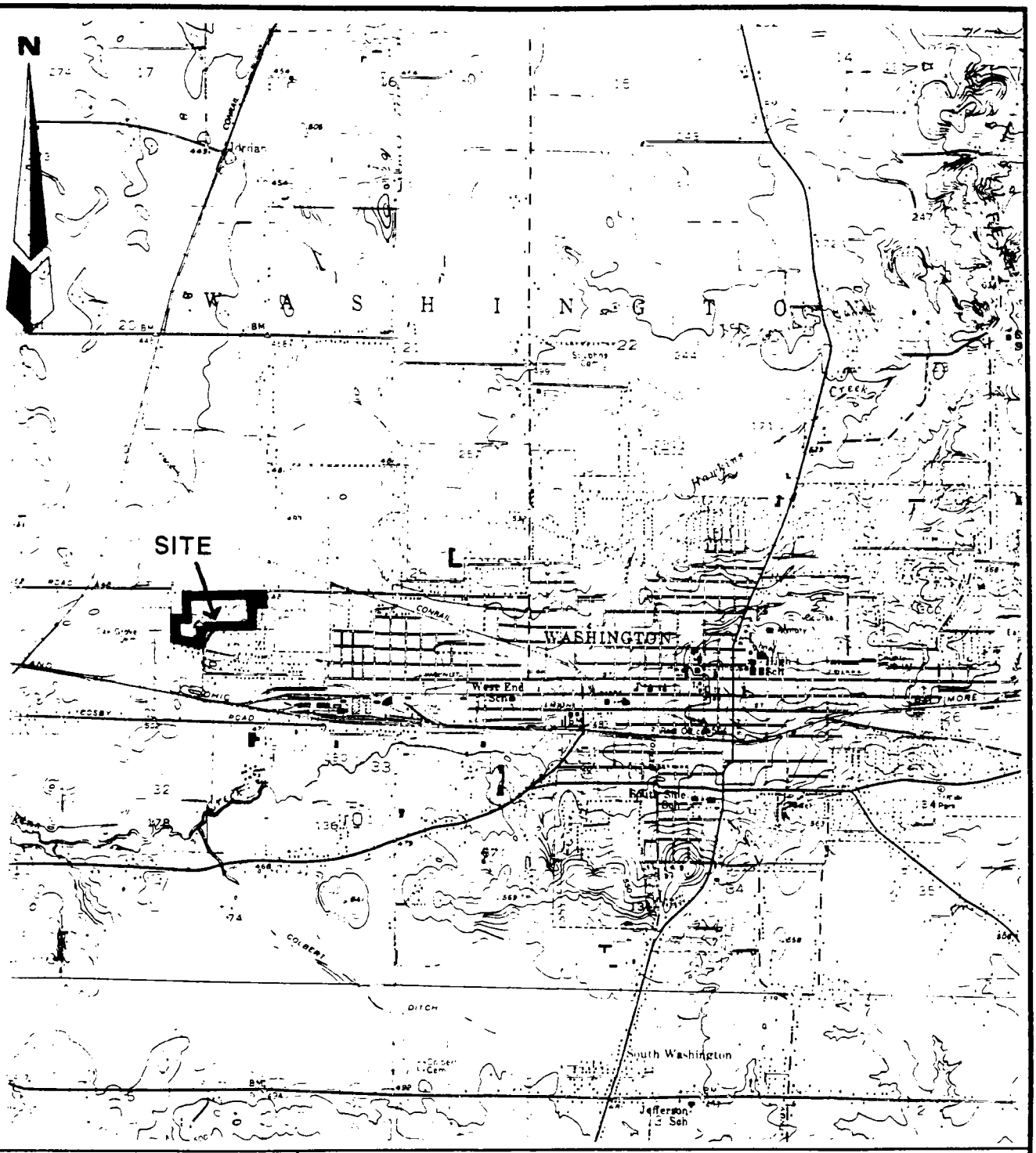
The Indiana Department of Environmental Management (IDEM) conducted a site visit on July 29, 1991, to assess the site for chemical hazards and to collect samples from tank insulation for asbestos analysis. Several citations have been issued to the site owner to cease illegal dumping and burning of trash on the property. The Daviess County Health Department (DCHD) has also been involved in previous site inspections. IDEM has requested U.S. EPA assistance to further characterize the site and collect samples from a number of drums and tanks stored on-site.

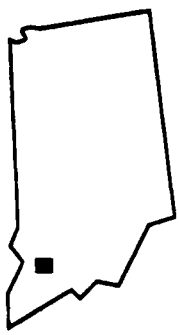
3.0 SITE ACTIVITIES

On August 12, 1991, TAT members Steve Skare, John Nordine, and Nick Rombakis met with U.S. EPA On-Scene Coordinator (OSC) Maureen O'Mara and representatives from IDEM and the Daviess County Health Department at the Carrico Drums site at 1250 hours. Personnel on-site and their affiliations are listed below:

Personnel	Affiliation
Maureen O'Mara	U.S. EPA OSC
Steve Skare	TAT Team Leader
John Nordine	TAT Team Member/SSO
Nick Rombakis	TAT Team Member
Lex Brashear	DCHD - Inspector
Gene Kelso	IDEM - OAM Compliance
John Crawford	IDEM - Site Cleanup Section

After a discussion of site history with IDEM and DCHD officials, TAT and the OSC conducted a site reconnaissance of the property. During the initial site survey, TAT documented areas of concern, including locations of aboveground storage tanks and oil stained soil areas, drum storage and stained soil areas, open burn pits, and a recent burn area with burnt construction lumber. TAT drew a site sketch detailing locations of the waste areas.





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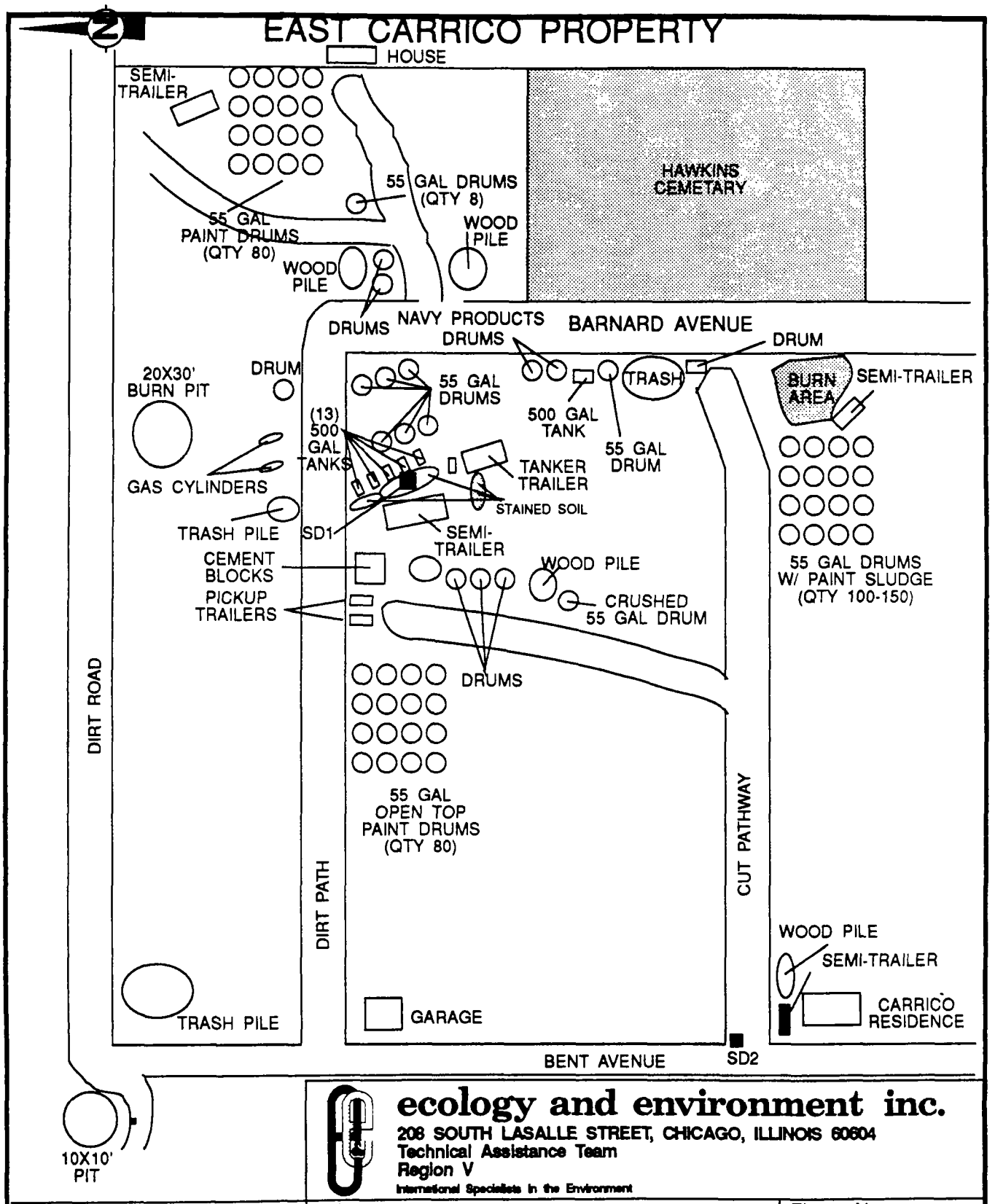
Title: Site Location Map	Figure No.: 1
Site: Carrico Drums	Scale: Not to Scale
City: Washington — State: Indiana	PAN: EIN0761SAA



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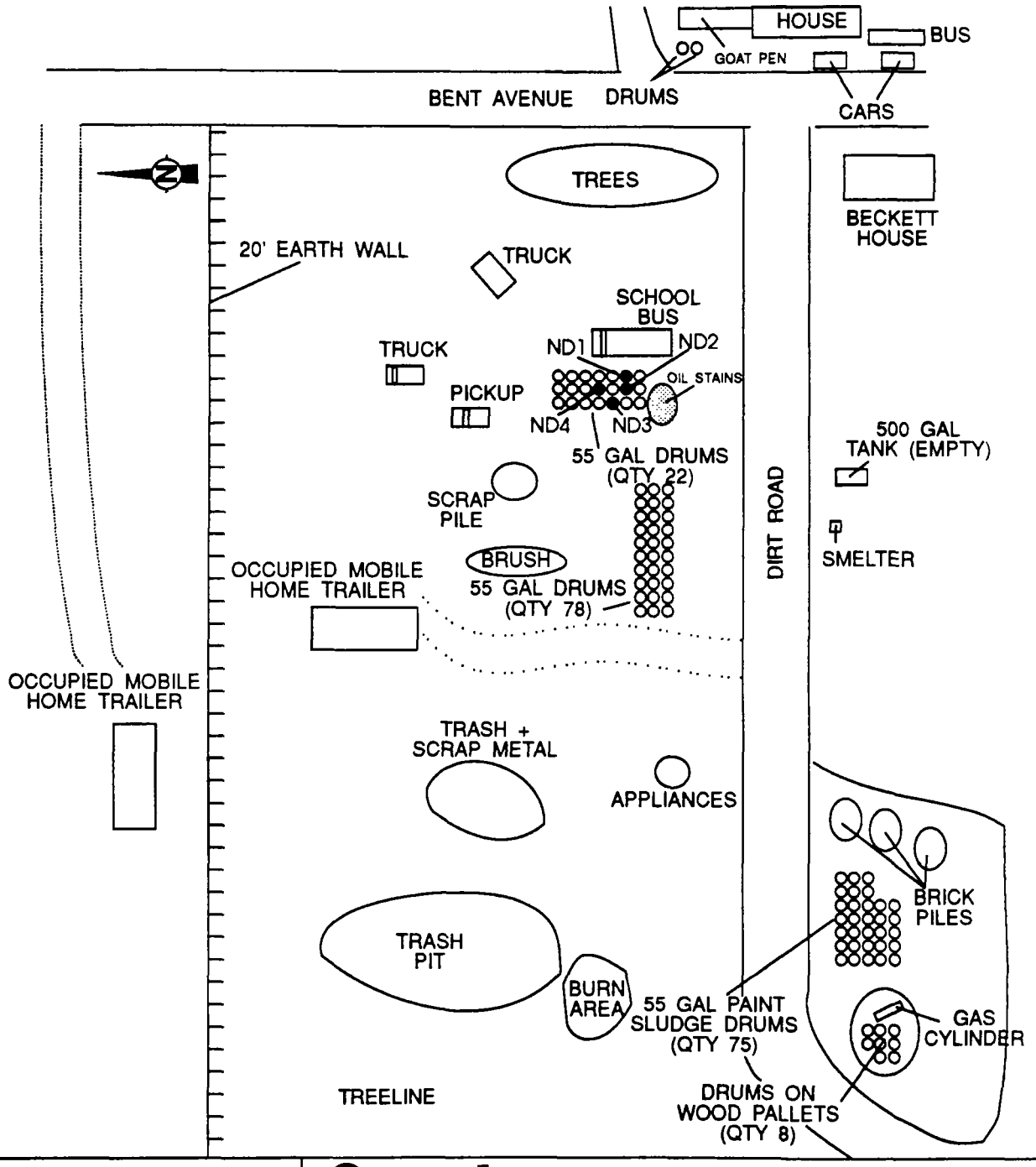
KEY
SAMPLE LOCATIONS

■ SURFACE SOIL

Title: Site Sketch	Figure No.: 2
Site: Carrico Drums	Scale: Not to Scale
City: Washington State: Indiana	PAN: EIN0761SAA

NEAR WEST CARRICO PROPERTY



KEY

SAMPLE LOCATIONS

■ DRUM SAMPLE

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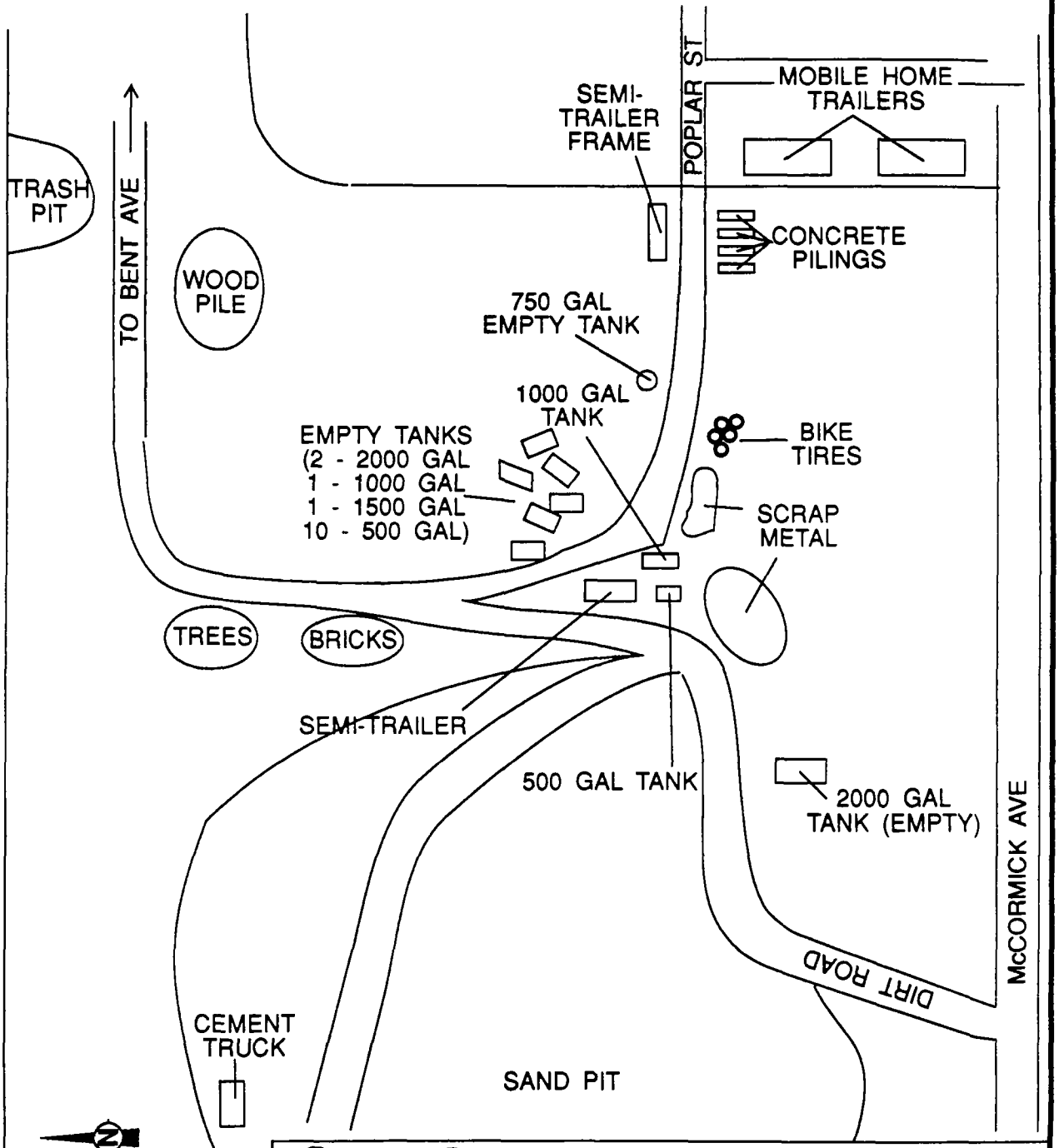
Title: Site Sketch	Figure No.: 3
Site: Carrico Drums - Near West Property	Scale: Not to Scale
City: Washington State: Indiana	PAN: EIN0761SAA

FAR WEST CARRICO PROPERTY



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Title: Site Sketch	Figure No.: 4
Site: Carrico Drums - Far West Property	Scale: Not to Scale
City: Washington State: Indiana	PAN: EIN0761SAA

4.0 SITE ASSESSMENT

At 1410 hours, TAT reconnaissance activities began. Numerous waste materials have been dumped on-site, including abandoned solid wastes (garbage), construction debris, scrap metal, old tires, appliances, abandoned vehicles, and approximately 585 drums in various states of deterioration, many rusted and open with material spilled out onto the ground. The majority of the drums appeared to contain toxic substances such as waste paints or paint solvents, but a number had manufacturers' labels indicating their contents as various types of waste oils, including cutting oils, motor oils, and hydraulic oils. Stained soil was evident around the drum storage areas. Along the east portion of the site, a large burn area was found adjacent to several hundred drums.

A total of 53 bulk storage tanks and an oil tanker truck were documented on-site. Oil had seeped out of the tanker and pooled on the ground. Also, noticeable staining from spilled oil was found on the soil next to several oil storage tanks. Some of the tanks housing insulation similar to asbestos had been sampled by IDEM during their site visit, with one tank confirmed to contain asbestos insulation. Throughout the site, there was evidence of trespassing and dogs passing through the site during the reconnaissance.

AT 1530 hours, TAT prepared to conduct air monitoring with an HNu photoionizer, a combustible gas indicator (CGI)/oxygen-meter, and a radiation survey meter around the waste oil drums; and for sampling activities, both to take place in Level B protection. After the initial survey was completed, four drums were opened and headspace readings were taken. The results are given below:

Drum Number	CGI Reading (%LEL)	HNu Reading (HNu Units)
ND1	0	0
ND2	15	180
ND3	60	0
ND4	100	170

Samples were collected using glass drum thieves and placed into 16-ounce glass jars. TAT completed drum sampling by 1635 hours and photodocumented the area. Sample locations are marked on Figures 1 and 2.

5.0 ANALYTICAL RESULTS

Samples were submitted for laboratory analysis for flashpoint, PCBs, Priority Pollutant Metals (Total Metals Analysis), and F-listed solvent parameters. Drum sample ND1 indicated the presence of low levels of chromium, copper, and zinc. Drum sample ND2 indicated the presence of ethylbenzene and xylene and a flashpoint of 123.8^{o}F. Drum sample ND3 indicated the presence of zinc and a flashpoint of 96.8^{o}F. Drum sample ND4 indicated the presence of ethylbenzene and xylene and a flashpoint of 104^{o}F. Soil sample SD1 indicated the presence of lead, zinc, ethylbenzene, xylene, and 2-butanone. Soil sample SD2 indicated the presence of lead, zinc, and Arochlor 1260. A summary of the analytical data results is given in Table 1. A copy of the data package submitted by the laboratory is included in Appendix B.

TABLE 1
Carrico Drums
Summary of Sample Results

Sample No.	ND1	ND2	ND3	ND4	SD1	SD2
Flashpoint (^{O}F)	<140	123.8	96.8	104	--	--
PCBs (in ug/g or ppm)						
Aroclor 1016	ND	ND	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND	ND	0.30
PP Metals (in ug/g or ppm)						
Antimony	ND	ND	ND	ND	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND
Beryllium	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	2	ND
Chromium	5	12	ND	12	26	16
Copper	14	8	ND	16	93	150
Lead	ND	ND	ND	ND	220	120
Mercury	ND	ND	ND	ND	ND	0.17
Nickel	ND	6	ND	11	21	9
Selenium	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND
Zinc	16	35	17	6	430	160
F-Listed Solvents (in ug/kg or ppb)						
Acetone	3U	3U	3U	3U	13B	3BU
Acrolein	2U	2U	2U	2U	2U	2U
Acrylonitrile	2U	2U	2U	2U		
Benzene	2U	2U	2U	2U	2U	2U
Bromodichloromethane	2U	2U	2U	2U	2U	2U
Bromoform	1U	1U	1U	1U	1U	1U
Bromomethane	2U	2U	2U	2U	2U	2U
2-Butanone	2U	2U	2U	2U	3	2U
Carbon Disulfide	2U	2U	2U	2U	2U	2U
Carbon tetrachloride	1U	1U	1U	1U	1U	1U
Chlorobenzene	1U	1U	1U	1U	1U	1U
Chloroethane	3U	3U	3U	3U	3U	3U
2-Chloroethylvinyl ether	2U	2U	2U	2U	2U	2U
Chloroform	2U	2U	2U	2U	2U	2U
Chloromethane	4U	4U	4U	4U	4U	4U

Dibromochloromethane	2U	2U	2U	2U	2U	2U
Dibromomethane	0.9U	0.9U	0.9U	0.9U	0.9U	0.9U
trans-1,4-dichloro-2-butene	2U	2U	2U	2U	2U	2U
1,1-Dichloroethane	2U	2U	2U	2U	2U	2U
1,2-Dichloroethane	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	2U	2U	2U	2U	2U	2U
1,2-Dichloroethene (total)	2U	2U	2U	2U	2U	2U
1,2-Dichloropropane	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	2U	2U	2U	2U	2U	2U
trans-1,3-Dichloropropene	2U	2U	2U	2U	2U	2U
Iodomethane	2U	2U	2U	2U	2U	2U
Ethyl benzene	1U	T	1U	T	3	1U
Ethyl methacrylate	1U	1U	1U	1U	1U	1U
2-Hexanone	2U	2U	2U	2U	2U	2U
Methylene chloride	4U	4U	4U	4U	2J	4U
4-Methyl-2-Pentanone	3U	3U	3U	3U	3U	3U
Styrene	2U	2U	2U	2U	2U	2U
1,1,2,2-Tetrachloroethane	1U	1U	1U	1U	1U	1U
Tetrachloroethene	2U	2U	2U	2U	2U	2U
Toluene	2U	2U	2U	2U	2U	2U
1,1,1-Trichloroethane	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	2U	2U	2U	2U	2U	2U
Trichloroethene	1U	1U	1U	1U	1U	1U
1,2,3-Trichloropropane	2U	2U	2U	2U	2U	2U
Trichlorofluoromethane	2U	2U	2U	2U	2U	2U
Vinyl acetate	3U	3U	3U	3U	3U	3U
Vinyl chloride	3U	3U	3U	3U	3U	3U
Xylenes, total	1U	T	1U	T	5	1U

ND = not detected

U = below detection limits

J = estimated quantity

B = analyte detected in laboratory blank

T = trace of analyte detected

6.0 THREAT TO PUBLIC HEALTH AND THE ENVIRONMENT

Paragragh (b) (2) of Part 300.415 of the National Contingency Plan lists factors to be considered when determining the appropriateness of a potential removal action at a site. The following discussion presents a summary of those factors which are applicable to the Carrico Drum site.

6.1 POTENTIAL EXPOSURE TO HAZARDOUS SUBSTANCES

Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chains. Analytical results from the four drum samples and the two soil samples indicate the presence of flammable materials and other hazardous substances at the Carrico Drum Site. Drums, tanks, and other containers are open and have leaked. Others could potentially leak or spill. The site is unsecured and located in a residential area. Some residents must pass through the site to gain access to their homes and evidence was found that trespassers and dogs and other animals have been on-site.

6.2 THREAT OF RELEASE

Hazardous substances or pollutants or contaminants in drums, barrels, tanks, other bulk storage containers that may pose a threat of release. TAT observed a number of drums and storage tanks during its site visit. Many of these drums are open, rusted, and deteriorated. These drums could leak and pose a threat of release. Also, unauthorized trespassers could potentially knock over these drums causing the potential for hazardous substances to be released into the environment.

6.3 SOIL CONTAMINATION MIGRATION

Soil samples collected by TAT contain low levels of PCBs. The potential for migration of these contaminants by airborne dust or from run-off exists. Several areas of the site are stained with oil or paint pigments as a result of drum leakage.

6.4 WEATHER CONDITIONS

All containers and tanks on-site are stored outdoors under constant exposure to the weather. Wind, rain, and direct sunlight cause excessive degradation of the on-site drums and tanks, which could cause further migration of contaminants if hazardous substances leaked.

6.5 THREAT OF FIRE OR EXPLOSION

Threat of fire or explosion. The site has been the scene for several fires in the past. Reports indicate that these fires were set with the intention of burining refuse on the site. This fact supports the threat of fire or explosion at the site, since a potential exists for trespassers and vandals to come in contact with hazardous substances stored in drums and storage tanks. Three of the four drums sampled contained materials which exhibited characteristics of flammability. Additionally, any fire or explosion could cause the spread of

other hazardous materials and create an immediate threat to health or the environment.

6.6 CHEMICAL HAZARDS OF CONTAMINANTS DOCUMENTED AT THE SITE

Paints and paint solvents contain mixtures of oil-based hydrocarbons, including benzene, toluene, xylene, ethyl benzene and similar compounds. Benzene is a suspected carcinogen which causes damage to the central nervous system, liver, kidney, and bone marrow. It is a skin and eye irritant, and can cause dizziness, vomiting, headaches, shallow respiration, and convulsions. At low temperatures, benzene becomes volatile with a flashpoint of $12^{o}F$. Routes of exposure include inhalation, ingestion, eye (ocular), and dermal absorption. The OSHA permissible exposure limit (PEL) for benzene is 1 ppm.

Toluene exhibits similar characteristics to benzene, causing damage to the central nervous system, liver, skin, and kidney. Toluene has a low vapor pressure and a flashpoint of $40^{o}F$. Signs of exposure include eye, skin, and respiratory irritation; fatigue; headaches; nausea; and drowsiness. Chronic exposure will lead to drying and cracking skin, degeneration of the heart, liver, and adrenals, and anemia. Routes of exposure include ingestion, eye (ocular), dermal adsorption, and inhalation. The OSHA PEL for toluene is 100 ppm.

Xylene, close in nature to benzene and toluene, can cause similar damage and show effects similar to those of benzene and toluene. Xylene is volatile with a vapor pressure of 9 mmHg and a flashpoint of $81^{o}F$. The OSHA permissible exposure limit (PEL) for xylene is 100 ppm.

Paint pigments have several metals and oil based hydrocarbons which make up its structure. Known metals in paints include lead, chromium, tin, nickel, and zinc. Metals are toxic, especially lead, which is a suspected teratogen and causes cumulative neurotoxicity, stomach distress, vomiting, diarrhea, anemia, and central nervous system effects. In rare instances, lead exposures could cause coma and death. Routes of exposure include ingestion, eye (ocular), skin contact, and inhalation. The exposure limit for lead is 0.01 ppm (Threshold limit value - TLV).

Chromium can cause contact dermatitis, ulcerations of skin/nasal mucosa, and irritation to eyes/mucous membranes. Routes of exposure include ingestion, eye (ocular), skin contact, and inhalation. The OSHA PEL is 0.47 ppm.

Nickel demonstrates symptoms and routes of exposure similar to those of chromium. In addition to irritation to skin, eyes, and mucous membranes, nausea, vomiting, headaches, nickel can cause cancer to the lungs and nasal passages in chronic exposures. The OSHA PEL for nickel is 1 mg/m^3.

Zinc causes skin irritation, coughing, weakness, muscular aches, fever, nausea, and vomiting in acute exposures. Routes of exposure include eye (ocular), inhalation, and ingestion. The TLV exposure limit for zinc is 1 mg/m^3.

Polychlorinated biphenyls (PCBs) are suspected carcinogens in humans and known animal mutagens, which cause damage to skin, liver, eyes, and the respiratory

system. Acute symptoms include skin/eyes/nose/throat irritation,vomiting, edema, nausea, abdominal pain, fatigue, and pigmentation of skin and nails. Chronic effects cause chloracne, liver damage, heart/kidney edema, possible embryotoxin in unborn, and grey-brown skin. The OSHA PEL is 0.09 ppm (skin) for PCB Arochlor 1242 and 0.03 ppm (skin) for PCB Arochlor 1254.

Fuel oil, and similar oils, cause skin and eye irritation, and may be harmful if ingested. Typical oils are flammable and have a flashpoint of 100°F. Many oils may also contain low levels of other contaminants, including aromatic hydrocarbons.

7.0 ALTERNATIVE ACTIONS

The presence of the threats addressed above will require the removal and disposal of approximately 15,000 gallons of liquid and solid wastes from various drums, tanks and other containers, 150 cubic yards of contaminated soil, and 60 cubic yards of empty crushed drums and personal protective equipment.

Incineration of all liquid and solid wastes along with the contaminated soil was considered and found to be cost prohibitive. Therefore, fuel blending treatments of the solid and liquid organic wastes, and landfill disposal of the other solid wastes, was chosen.

8.0 COSTS

A cost estimate for the removal and disposal of solid and liquid wastes at the Carrico Drum site have been based on several assumptions. Approximately 590 drums and 53 storage tanks of various materials are located on-site. Assuming 6,350 gallons (2,500 gallons of tank oil and 70 55-gallon drums of oil) of waste oils, and with the remaining waste streams containing paints and paint solids, aqueous liquids, and solid waste, estimated quantities of wastes can be determined as follows. Assuming a 10 x 10 x 1.5-yd.-deep area of soil contamination near the fuel oil tanks, approximately 150 cubic yards of contaminated soil are to be removed, with an additional 60 cubic yards of debris (crushed drums and personal protective clothing), 350 drums of flammable liquids (paint), 80 drums of flammable solids (paint), 90 drums of base/neutral liquids, 2,500 gallons of tank oil, and 70 drums of waste oil that must be disposed. An estimate of 15 working days was calculated to complete the removal action. The cost projection has been placed in Attachment C.

9.0 COST PROJECTION SUMMARY

CONTRACTOR PERSONNEL	80,384.38
CONTRACTOR EQUIPMENT	24,994.06
UNIT RATE MATERIALS	65,281.65
AT COST MATERIALS	181.35
SUBCONTRACTORS	26,615.82
WASTE TRANSPORTATION	36,076.56
WASTE DISPOSAL	151,453.85
CLEANUP CONTRACTOR SUBTOTAL	384,987.67
EXTRAMURAL SUBTOTAL	384,987.67
20% EXTRAMURAL CONTINGENCY	76,997.53
EXTRAMURAL SUBTOTAL	461,985.20
TAT PERSONNEL	57,778.80
TOTAL TAT COSTS	57,778.80
EXTRAMURAL SUBTOTAL	519,764.00
15% PROJECT CONTINGENCY	77,728.60
TOTAL EXTRAMURAL COST	597,728.60
EPA REGIONAL PERSONNEL	14,720.00
EPA HEADQUARTERS DIRECT	0.00
(0% OF REGIONAL HOURS)	
EPA INDIRECT	22,440.00
EPA TOTAL	37,160.00
PROJECT TOTAL	634,888.60

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 1 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/12/91

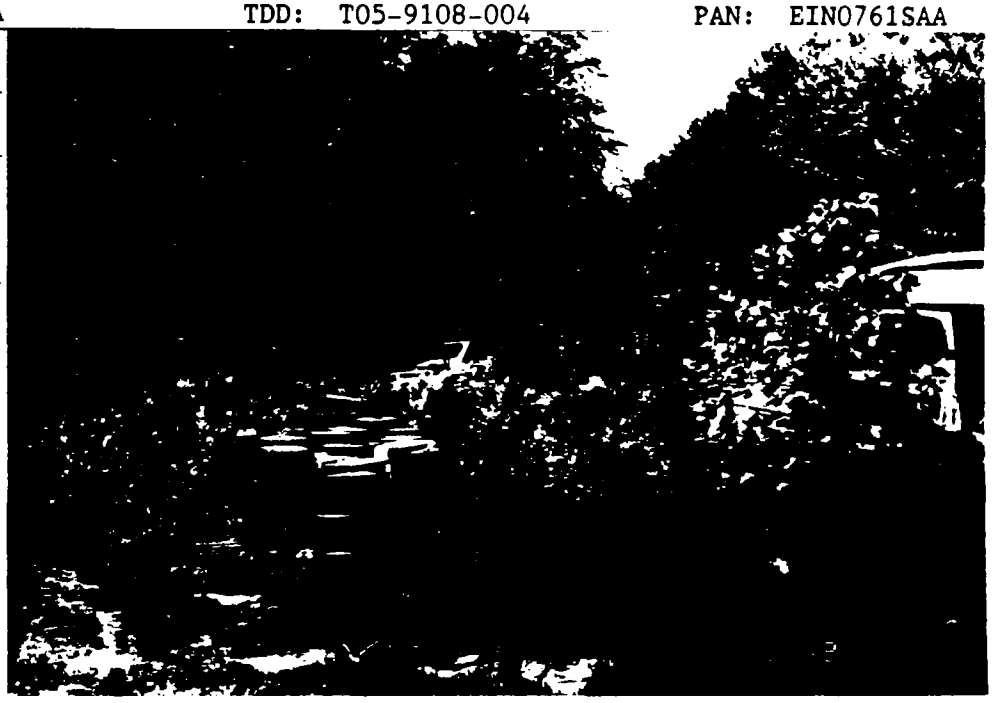
TIME: 1540 HRS

DIRECTION OF PHOTOGRAPH: NORTH

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A



DESCRIPTION: NEAR NORTH DRUMS WEST OF BENT AVENUE AND NORTH OF BECKETT RESIDENCE.

DATE: 8/12/91

TIME: 1540 HRS

DIRECTION OF PHOTOGRAPH: NORTHWEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: DRUMS BY DIRT ROAD LEADING WEST OF BENT AVENUE.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 2 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/12/91

TIME: 1540 HRS

DIRECTION OF PHOTOGRAPH: WEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: VIEW OF WEST END OF PROPERTY LOOKING WEST.

DATE: 8/12/91

TIME: 1540

DIRECTION OF PHOTOGRAPH: EAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: WEST SIDE OF CARRICO PROPERTY LOOKING EAST TOWARD BENT AVENUE.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 3 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/12/91

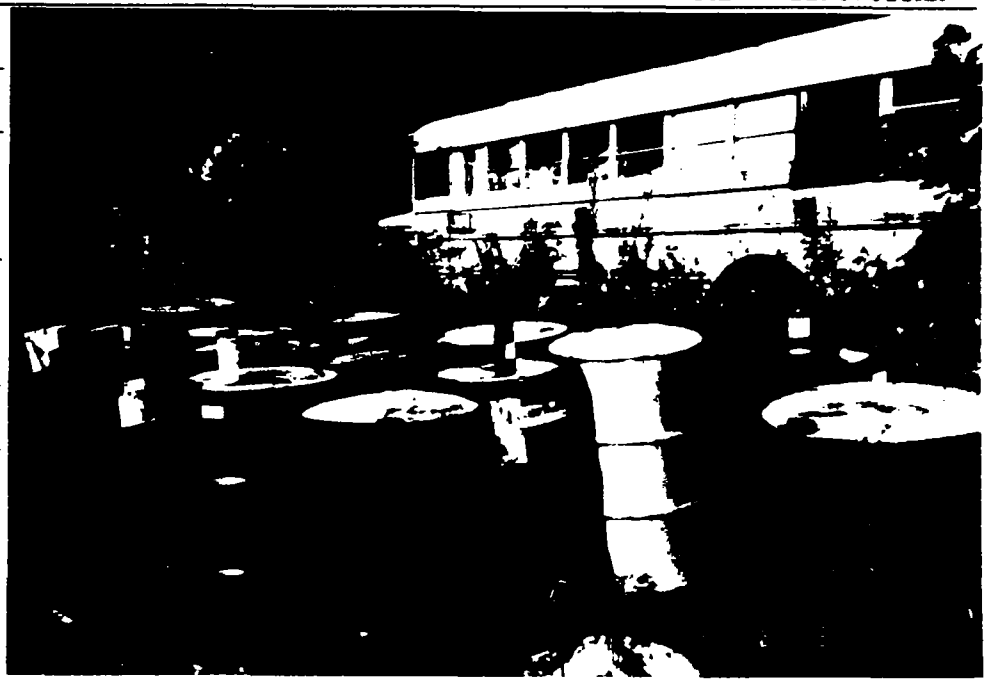
TIME: 1635 HRS

DIRECTION OF PHOTOGRAPH: NORTHEAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A



DESCRIPTION: NEAR NORTH DRUM AREA WITH DRUM SAMPLES SET ON TOP OF SAMPLED DRUMS (DRUM NUMBERS 1-4).

DATE: 8/12/91

TIME: 1635 HRS

DIRECTION OF PHOTOGRAPH: NORTHWEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: TAT CONDUCTING AIR MONITORING NEAR DRUMS.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 4 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/12/91

TIME: 1635 HRS

DIRECTION OF PHOTOGRAPH: NORTHWEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: CLOSEUP OF DRUM LABELLED ANCOGRIND 205.

DATE: 8/12/91

TIME: 1805 HRS

DIRECTION OF PHOTOGRAPH: EAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: NORDINE

SAMPLE ID (if applicable): N/A

DESCRIPTION: LOCATION OF SOIL SAMPLE NUMBER 1 NEAR OIL POOL FROM OIL TANKS (EAST SIDE OF CARRICO PROPERTY).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 5 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

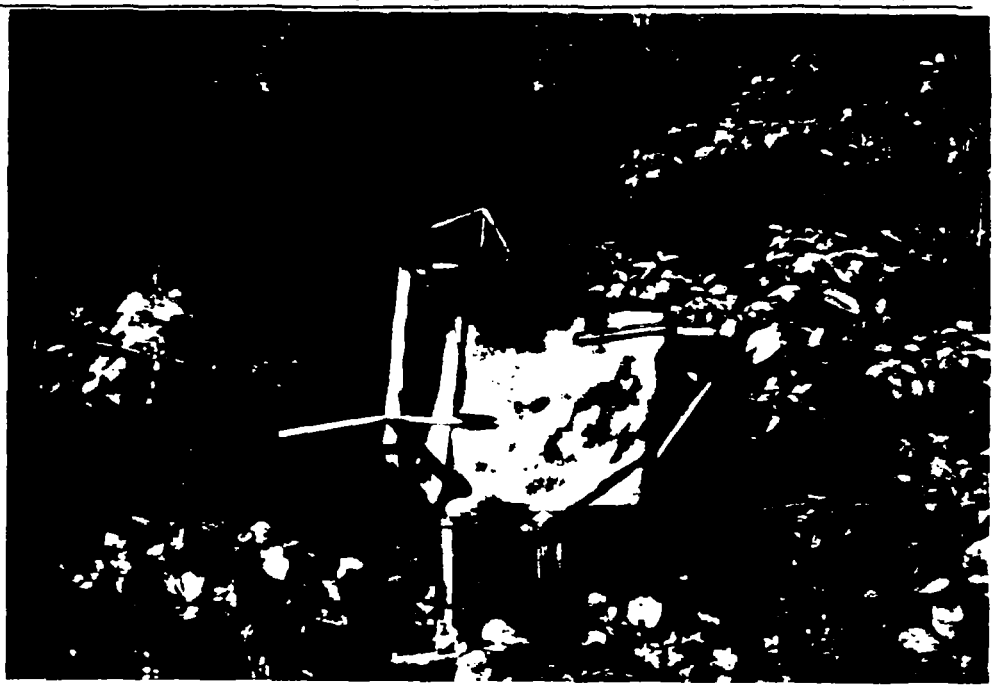
TIME: 0723 HRS

DIRECTION OF PHOTOGRAPH: SOUTH

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A



DESCRIPTION: VIEW OF SMALL METAL SMELTER NEAR NEAR NORTH DRUMS ALONG DIRT ROAD. USE OF SMELTER IS UNKNOWN.

DATE: 8/13/91

TIME: 0735 HRS

DIRECTION OF PHOTOGRAPH: NORTH

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: NEARBY RESIDENCES TO THE NORTH OF WEST CARRICO PROPERTY.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 6 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

TIME: 0736 HRS

DIRECTION OF PHOTOGRAPH: SOUTHEAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: CLOSEUP OF SOLIDIFIED PAINT DRUM LOCATED AT THE WEST SIDE OF CARRICO PROPERTY.

DATE: 8/13/91

TIME: 0739 HRS

DIRECTION OF PHOTOGRAPH: SOUTHEAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: VIEW OF DRUMS APPROXIMATELY 100 FEET WEST OF NEAR NORTH DRUMS ALONG DIRT PATH (WEST CARRICO PROPERTY).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 7 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

TIME: 0741 HRS

DIRECTION OF PHOTOGRAPH: SOUTHWEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: GAS CYLINDER WITH NO VISIBLE MARKINGS LYING APPROXIMATELY 25 FEET WEST OF DRUMS IDENTIFIED IN PHOTO PAGE 6.

DATE: 8/13/91

TIME: 0746 HRS

DIRECTION OF PHOTOGRAPH: SOUTHEAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: 3 FUEL TANKS BELIEVED TO BE EMPTY LOCATED AT THE WEST CARRICO PROPERTY.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 8 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

TIME: 0750 HRS

DIRECTION OF PHOTOGRAPH: NORTHEAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: LARGE STORAGE TANKS LOCATED AT WEST CARRICO PROPERTY.

DATE: 8/13/91

TIME: 0751 HRS

DIRECTION OF PHOTOGRAPH: DOWN

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: CLOSEUP VIEW OF TANK INSULATION SIMILAR IN NATURE TO ASBESTOS TYPE INSULATION.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 9 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

TIME: 0752 HRS

DIRECTION OF PHOTOGRAPH: EAST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: EXIT FROM WEST PROPERTY TO POPLAR STREET LOOKING EAST.

DATE: 8/13/91

TIME: 0755 HRS

DIRECTION OF PHOTOGRAPH: WEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: VIEW OF CEMETARY FROM WEST END OF PROPERTY. A LARGE PIT IS IN VIEW FROM THE FOREGROUND.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 10 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

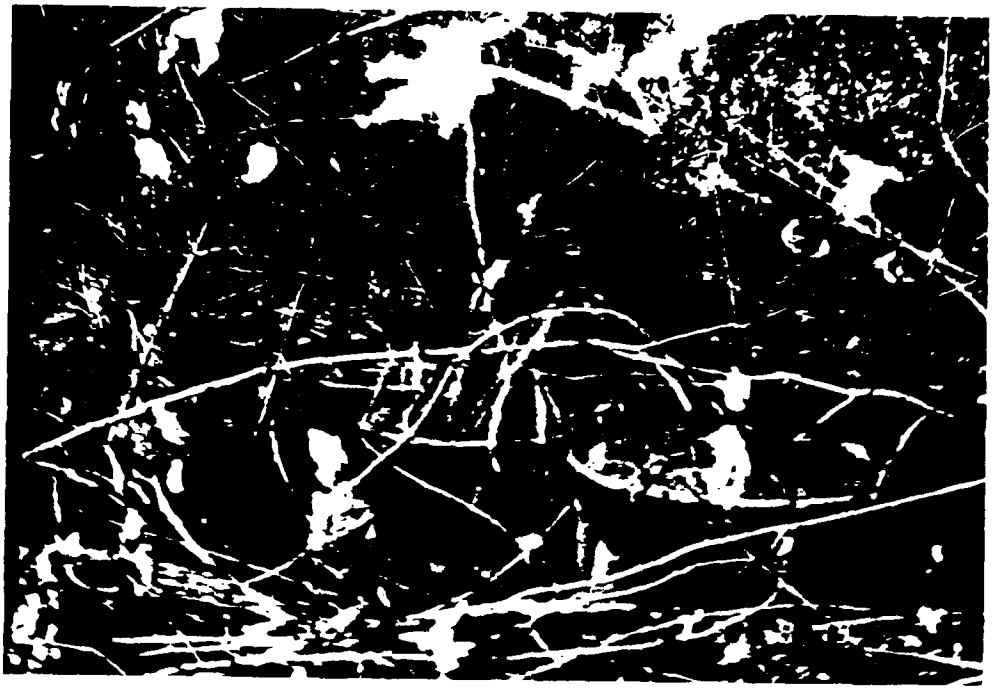
TIME: 0812 HRS

DIRECTION OF PHOTOGRAPH: SOUTH

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A



DESCRIPTION: DRUMS LOCATED AT EAST CARRICO PROPERTY NEAR THE HAWKINS CEMETARY.

DATE: 8/13/91

TIME: 0814 HRS

DIRECTION OF PHOTOGRAPH: SOUTHWEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: BURN SITE AT EAST CARRICO PROPERTY NEXT TO PAINT DRUMS AND CEMETARY.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: CARRICO DRUMS PAGE 11 OF 11

U.S. EPA ID: N/A TDD: T05-9108-004 PAN: EIN0761SAA

DATE: 8/13/91

TIME: 0822 HRS

DIRECTION OF PHOTOGRAPH: DOWN

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: FUEL OIL TANK TRUCK WITH OIL SPILL.

DATE: 8/13/91

TIME: 0825 HRS

DIRECTION OF PHOTOGRAPH: WEST

WEATHER CONDITIONS: PARTLY CLOUDY

PHOTOGRAPHED BY: SKARE

SAMPLE ID (if applicable): N/A

DESCRIPTION: PAINT DRUMS LOCATED NEXT TO DIESEL OIL TANKS AT THE EAST CARRICO PROPERTY.

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

MEMORANDUM

DATE: September 17, 1991

TO: Steve Skare, Project Manager, E & E, Cincinnati, OH

FROM: Jane G. Malkin, TAT-Chemist, E & E, Chicago, IL

SUBJ: PCB Data Quality Assurance Review, Carrico Drums Washington, Indiana

REF: Analytical TDD: T05-9108-802 Project TDD: T05-9108-004
Analytical PAN: EIN0761AAA Project PAN: EIN0761SAA

The data quality assurance review of 2 soil samples and 4 drum samples collected from the Carrico Drums site in Washington, Indiana has been completed. Analysis for PCB (EPA method 8080) was performed by Data Chem, Salt Lake City, Utah.

The 2 soil samples were numbered SL1 and SL2, and the 4 drum samples were numbered ND1 through ND4.

Data Qualifications:

I. Holding Time: Acceptable

The samples were collected on August 12, 1991, extracted on August 19 and analyzed by August 22, 1991. This met the holding time requirement for extraction of 14 days for soil PCB samples.

II. Calibration: Acceptable

A. Initial Calibration: Acceptable

The percent relatve standard deviation (%RSD) of calibration factors for Arochlor 1260 and Arochlor1016 were within the prescribed control limits.

B. Continuing Calibration: Acceptable

The established quality control criteria for the percent difference (%D) between the initial calibration factor and the continuing calibration factor is less than 15% for the compounds being quantitated.

III. Matrix Spike/Matrix Spike Duplicates: Acceptable

The percent recoveries of matrix spike and matrix spike duplicate were all within the control limits. The relative percent difference between the recoveries were all within the control limits.

IV. Blanks: Acceptable

Results of the method blank samples were all below instrument detection limits.

V. Compound Identification: Acceptable

A spot check review of the data insured that the compounds detected or not detected are correct.

VI. Compound Quantitation and Reported Detection Limits: Acceptable

A spot check of the data were recalculated to verify the quantitation calculations. The reported detection limits reflect concentrations, dilutions, sample weights, etc.

VII. Surrogate Recoveries: Data not available

VIII. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Quality Assuance/Quality Contrl Guidance for Removal Activities" (April 1990). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

AMENDED

Form ARF-AL
Page 1 of 2
Part 1 of 1

Date 9/16/91
Agency Identification Number S91-0587-DF
Account No. 03018

Ecology & Environmental, Inc.
208 South La Salle Street
Chicago, IL 60604
Attention: Jane Malkin

FAX (312) 201-3827
Telephone (312) 201-3790

Sampling Collection and Shipment

Sampling Site _____ Date of Collection August 12, 1991

Date Samples Received at DataChem August 14, 1991

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis August 29, 1991

Analytical Results

Field Sample Number	DataChem Lab Number	Sample Type	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g	Aroclor 1260 µg/g	
SL 1	EK 3080	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	.09	
SL 2	EK 3081	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	1.0	
MS SOIL	EK 3084	SOIL	1.5	ND*	ND*	ND*	ND*	ND*	2.8	
MSD SOIL	EK 3085	SOIL	1.6	ND*	ND*	ND*	ND*	ND*	2.7	
* Limit of Detection			.07	.07	.07	.07	.07	.07	.07	

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: James W. Dewees

Reviewer: Kemra Siddoway

Laboratory Supervisor: Jose C. Danino

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-C
Page 2 of 2

AMENDED

Date 9/16/91

Agency Identification Number S91-0587-DF

General Set Comments

The surrogate recovery could not be calculated for this set. Either the surrogate was not added to the samples during extraction or the wrong concentration was used. Therefore, the recovery could not be calculated.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

AMENDED

Date 9/16/91
Agency Identification Number S91-0587-CF
Account No. 03018

Ecology & Environmental, Inc.
208 South La Salle Street
Chicago, IL 60604
Attention: Jane Malkin

FAX (312) 201-3827
Telephone (312) 201-3790

Sampling Collection and Shipment

Sampling Site _____ Date of Collection August 12, 1991

Date Samples Received at DataChem August 14, 1991

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis August 29, 1991

Analytical Results

Field Sample Number	DataChem Lab Number	Sample Type	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g	Aroclor 1260 µg/g
ND-1	EK 3076	WASTE	ND*	ND*	ND*	ND*	ND*	ND*	ND*
ND-2	EK 3077	WASTE	ND*	ND*	ND*	ND*	ND*	ND*	ND*
ND-3	EK 3078	WASTE	ND*	ND*	ND*	ND*	ND*	ND*	ND*
ND-4	EK 3079	WASTE	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MS WASTE	EK 3082	WASTE	8.2	ND*	ND*	ND*	ND*	ND*	7.3
MSD WASTE	EK 3083	WASTE	7.0	ND*	ND*	ND*	ND*	ND*	9.5
* Limit of Detection			2.	2.	2.	2.	2.	2.	2.

* See comment on last page.
** See comment on last page.
ND Parameter not detected.
( ) Parameter between LOD and LOQ.
NR Parameter not requested.

Analyst: James W. Dawes

Reviewer: Kemla Siddoway

Laboratory Supervisor: Jose C. Danino

DATA CHEM LABORATORIES

ANALYTICAL REPORT

AMENDED

Date 9/16/91

Agency Identification Number S91-0587-CF

General Set Comments

The surrogate recovery could not be calculated in this set. Either the surrogate was not added to the samples during the extraction or the wrong concentration was used. In either case the recovery was not able to be calculated.

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

MEMORANDUM

DATE: September 17, 1991

TO: Steve Skare, Project Manager, E & E, Cincinnati, OH

FROM: Jane G. Malkin, TAT-Chemist, E & E, Chicago, IL

SUBJ: **Organic Data Quality Assurance Review,** Carrico Drums, Washington, Indiana

REF: Analytical TDD: T05-9108-802 Project TDD: T05-9108-004
Analytical PAN: EIN0761AAA Project PAN: EIN0761SAA

The data quality assurance review of 2 soil samples collected from the Carrico Drums site in Washington, Indiana has been completed. Analysis for volatile Organics (EPA method 8240) was performed by Data Chem, Salt Lake City, Utah.

The 2 samples were numbered: S1 and S2,.

Data Qualifications:

I. Holding Time: Acceptable

The samples were collected on August 12, 1991 and analyzed by August 22, 1991, which met the holding time requirement of 14 days for soil volatile samples.

II. GC/MS Tuning: Acceptable

GC/MS tuning ion abundance criteria for bromoflourobenzene (BFB) was within the established control limits.

III. Calibration

A. Initial Calibration: Acceptable

A 5 point calibration was performed prior to sample analysis with 20, 50, 100, 150 and 200 ppb standards. All average relative response factors (RRF) were greater than 0.05 and the percent relative standard deviation between response factors was less than 30%.

B. Continuing Calibration: Acceptable

The lab performed the sample analyses between 8/21/91 and 8/22/91 with continuing calibration standards analyzed on 8/21/91. All the continuing calibration standard RFFs were greater than 0.05 and the percent difference (%D) from initial calibration were less than 25%.

IV. Internal Standards: Acceptable

The established quality control criteria for the internal standard (IS) area counts is in the range of -50% to +100% from the associated calibration standard. All the (IS) area counts were the specified control limits.

IS retention times were within the $\pm$ 30 second control limit.

V. Error Determination

Matrix Spike/Matrix Spike Duplicates: Acceptable

The lab spiked sample number S2 with low level concentrations. The percent recoveries of the Matrix Spike/Matrix Spike Duplicates (MS/MSD) were all within the control limits. The relative percent difference between the recoveries were all within the control limits.

VI. Method Blank: Acceptable

A method blank were analyzed with the samples. There were no contaminants found in the blanks above the instrument detection limit except for acetone. The acetone in both samples were flagged as B, as detected in the blank.

VIII.Optional QC Check

Surrogate Recovery: Acceptable

The percent surrogate recoveries were all within the control limits.

VIII.Compound Identification: Acceptable

Tentatively Identified Compounds

All tentatively Identified Compounds (TIC) matched the lab standard spectra with agreement of relative intensities for standards and samples within 20%.

IX. Compound Identification and Reported Detection Limits: Acceptable

All positive results were identified correctly. The sample compound spectra matched the lab standard specrtra with agreement of relative intensities for standards and samples within 20%. Quantitation calculations were recalculated by spot check to verify accuracy. The reported analyte concentrations and detection limits accurately reflect concentrations, dilutions, sample weights, etc..

X. Overall Assessment of Data for Use:

the overall usefulness of the data is based on the criteria outlined in "Quality Assurrance/Quality control Guidance for Removal Activities" (OSWER Directive 9360.4-01 April, 1990).

Based upon the information provided, the data are acceptable for use with the above stated data qualidfications.

Data Qualifiers and Definitions

B - The material was detected in the sample, and was also detected in the blank.

Sample Number
SL-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: DATACHEM LABS Case No: 0587

Lab Sample ID No: EK3080 QC Report No:

Sample Matrix: SOIL Contract No: 3018

Data Release Authorized By: Date Sample Received: 08/15/91

VOLATILE COMPOUNDS

Concentration: LOW

Date Extracted/Prepared:

Date Analyzed: 08/22/91

Conc/Dil Factor: 1. pH

Percent Moisture: (Not Decanted) 10

CAS Number		ug/Kg		CAS Number		ug/Kg	
74-87-3	Chloromethane	4	U	10061-01-5	cis-1,3-Dichloropropene	2	U
74-83-9	Bromomethane	2	U	79-01-6	Trichloroethene	1	U
75-01-4	Vinyl Chloride	3	U	124-48-1	Dibromochloromethane	2	U
75-00-3	Chloroethane	3	U	79-00-5	1,1,2-Trichloroethane	2	U
75-09-2	Methylene Chloride	2	J	71-43-2	Benzene	2	U
67-64-1	Acetone	13	B	10061-02-6	Trans-1,3-Dichloroproene	2	U
75-15-0	Carbon Disulfide	2	U	110-75-8	2-Chloroethylvinylether	2	U
75-69-4	Trichlorofluoromethane	2	U	75-25-2	Bromoform	1	U
75-35-4	1,1-Dichloroethene	2	U	74-95-3	Dibromomethane	0.9	U
75-35-3	1,1-Dichloroethane	2	U	764-41-0	Trans-1,4-dichloro-2-butene	2	U
540-59-0	1,2-Dichloroethene (total)	2	U	108-10-1	4-Methyl-2-Pentanone	3	U
67-66-3	Chloroform	2	U	96-18-4	1,2,3-Trichloropropane	2	U
107-06-2	1,2-Dichloroethane	1	U	591-78-6	2-Hexanone	2	U
74-88-4	Iodomethane	2	U	127-18-4	Tetrachloroethene	2	U
10[illegible]02-8	Acrolein	2	U	79-34-5	1,1,2,2-Tetrachloroethane	1	U
10[illegible]13-1	Acrylonitrile	2	U	97-63-2	Ethyl methacrylate	1	U
78-93-3	2-Butanone	3		108-88-3	Toluene	2	U
71-55-6	1,1,1-Trichloroethane	1	U	108-90-7	Chlorobenzene	1	U
56-23-5	Carbon Tetrachloride	1	U	100-41-4	Ethylbenzene	3	
108-05-4	Vinyl Acetate	3	U	100-42-5	Styrene	2	U
75-27-4	Bromodichloromethane	2	U	1330-20-7	Total Xylenes	5	
78-87-5	1,2-Dichloropropane	1	U				

B - Compound was detected in the QC blank.

= - Reported value is less than the detection limit.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: SL-1

ab Name: DATACHEM LABS Contract: _____

Lab Code: DATAC Case No.: 0587 SAS No.: _____ SDG No.: EK3080

atrix: (soil/water) SOIL Lab Sample ID: EK3080

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CY10EK3080

evel: (low/med) LOW Date Received: 08/15/91

Moisture: not dec. 10 Date Analyzed: 08/22/91

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (ul) Soil Aliquot Volume: _____(ul)

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-18-5	DECANE	21.19	26	J
2.		UNKNOWN C10 HYDROCARBON	21.59	15	J
3.		TRIMETHYL BENZENE ISOMER	22.17	21	J
4.		UNKNOWN C10 HYDROCARBON	22.40	40	J
5.		UNKNOWN C11 HYDROCARBON	22.57	16	J
6.		C3 SUBSTITUTED BENZENE	22.94	16	J
7.		UNKNOWN C11 HYDROCARBON	23.10	170	J

Sample Number
SL-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: DATACHEM LABS Case No: 0587

Lab Sample ID No: EK3081 QC Report No:

ample Matrix: SOIL Contract No: 3018

ata Release Authorized By: Date Sample Received: 08/15/91

VOLATILE COMPOUNDS

Concentration: LOW

Date Extracted/Prepared:

Date Analyzed: 08/21/91

Conc/Dil Factor: 1. pH

Percent Moisture: (Not Decanted) 10.0

AS Number		UG/KG		CAS Number		UG/KG	
74-87-3	Chloromethane	4	U	10061-01-5	cis-1,3-Dichloropropene	2	U
74-83-9	Bromomethane	2	U	79-01-6	Trichloroethene	1	U
5-01-4	Vinyl Chloride	3	U	124-48-1	Dibromochloromethane	2	U
75-00-3	Chloroethane	3	U	79-00-5	1,1,2-Trichloroethane	2	U
75-09-2	Methylene Chloride	4	U	71-43-2	Benzene	2	U
7-64-1	Acetone	3	BU	10061-02-6	Trans-1,3-Dichloroproene	2	U
5-15-0	Carbon Disulfide	2	U	110-75-8	2-Chloroethylvinylether	2	U
75-69-4	Trichlorofluoromethane	2	U	75-25-2	Bromoform	1	U
75-35-4	1,1-Dichloroethene	2	U	74-95-3	Dibromomethane	0.9	U
5-35-3	1,1-Dichloroethane	2	U	764-41-0	Trans-1,4-dichloro-2-butene	2	U
540-59-0	1,2-Dichloroethene (total)	2	U	108-10-1	4-Methyl-2-Pentanone	3	U
67-66-3	Chloroform	2	U	96-18-4	1,2,3-Trichloropropane	2	U
07-06-2	1,2-Dichloroethane	1	U	591-78-6	2-Hexanone	2	U
4-88-4	Iodomethane	2	U	127-18-4	Tetrachloroethene	2	U
10[illegible]2-8	Acrolein	2	U	79-34-5	1,1,2,2-Tetrachloroethane	1	U
07[illegible]13-1	Acrylonitrile	2	U	97-63-2	Ethyl methacrylate	1	U
8-93-3	2-Butanone	2	U	108-88-3	Toluene	2	U
71-55-6	1,1,1-Trichloroethane	1	U	108-90-7	Chlorobenzene	1	U
56-23-5	Carbon Tetrachloride	1	U	100-41-4	Ethylbenzene	1	U
08-05-4	Vinyl Acetate	3	U	100-42-5	Styrene	2	U
75-27-4	Bromodichloromethane	2	U	1330-20-7	Total Xylenes	1	U
78-87-5	1,2-Dichloropropane	1	U				

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SL-2

Lab Name: DATACHEM LABS Contract: _____

Lab Code: DATAC Case No.: 0587 SAS No.: _____ SDG No.: EK3080

Matrix: (soil/water) SOIL Lab Sample ID: EK3081

Sample wt/vol: _____ (g/mL) G Lab File ID: CY07EK3081

Level: (low/med) LOW Date Received: 08/15/91

% Moisture: not dec. 10 Date Analyzed: 08/21/91

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1

Extract Volume: _____ (ul) Soil Aliquot Volume: _____(ul)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Sample Number
VBLK01

VOLATILE ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: DATACHEM LABS Case No: BLANK

Lab Sample ID No: MB-1 QC Report No: _____

Sample Matrix: SOIL Contract No: _____

Data Release Authorized By: _____ Date Sample Received: _____

VOLATILE COMPOUNDS

Concentration: LOW

Date Extracted/Prepared: _____

Date Analyzed: 08/21/91

Conc/Dil Factor: 1. pH _____

Percent Moisture: (Not Decanted) _____

CAS Number		ug/Kg		CAS Number		ug/Kg	
74-87-3	Chloromethane	3	U	10061-01-5	cis-1,3-Dichloropropene	2	U
74-83-9	Bromomethane	2	U	79-01-6	Trichloroethene	1	U
5-01-4	Vinyl Chloride	3	U	124-48-1	Dibromochloromethane	1	U
5-00-3	Chloroethane	3	U	79-00-5	1,1,2-Trichloroethane	2	U
75-09-2	Methylene Chloride	3	U	71-43-2	Benzene	1	U
7-64-1	Acetone	3		10061-02-6	Trans-1,3-Dichloroproene	2	U
5-15-0	Carbon Disulfide	2	U	110-75-8	2-Chloroethylvinylether	2	U
75-69-4	Trichlorofluoromethane	2	U	75-25-2	Bromoform	1	U
75-35-4	1,1-Dichloroethene	2	U	74-95-3	Dibromomethane	0.8	U
5-35-3	1,1-Dichloroethane	2	U	764-41-0	Trans-1,4-dichloro-2-butene	1	U
540-59-0	1,2-Dichloroethene (total)	2	U	108-10-1	4-Methyl-2-Pentanone	2	U
67-66-3	Chloroform	2	U	96-18-4	1,2,3-Trichloropropane	1	U
07-06-2	1,2-Dichloroethane	1	U	591-78-6	2-Hexanone	2	U
4-88-4	Iodomethane	2	U	127-18-4	Tetrachloroethene	1	U
107-02-8	Acrolein	2	U	79-34-5	1,1,2,2-Tetrachloroethane	1	U
3-1	Acrylonitrile	2	U	97-63-2	Ethyl methacrylate	1	U
3-93-3	2-Butanone	2	U	108-88-3	Toluene	1	U
71-55-6	1,1,1-Trichloroethane	1	U	108-90-7	Chlorobenzene	1	U
56-23-5	Carbon Tetrachloride	1	U	100-41-4	Ethylbenzene	1	U
08-05-4	Vinyl Acetate	3	U	100-42-5	Styrene	2	U
75-27-4	Bromodichloromethane	1	U	1330-20-7	Total Xylenes	0.9	U
78-87-5	1,2-Dichloropropane	1	U				

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: DATACHEM LABS Contract: _____

Lab Code: DATAC Case No.: 0587 SAS No.: _____ SDG No.: EK3080

Matrix: (soil/water) SOIL Lab Sample ID: MB-1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CY06BLANK

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/21/91

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Extract Volume: _____ (ul) Soil Aliquot Volume: _____(ul)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Sample Number
SL-2MS

VOLATILE ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: DATACHEM LABS Case No: 0587

Lab Sample ID No: EK3081MS QC Report No:

Sample Matrix: SOIL Contract No: 3018

Data Release Authorized By: Date Sample Received: 08/15/91

VOLATILE COMPOUNDS

Concentration: LOW

Date Extracted/Prepared:

Date Analyzed: 08/22/91

Conc/Dil Factor: 1. pH

Percent Moisture: (Not Decanted) 10

CAS Number		ug/Kg		CAS Number		ug/Kg	
74-87-3	Chloromethane	4	U	10061-01-5	cis-1,3-Dichloropropene	2	U
74-83-9	Bromomethane	2	U	79-01-6	Trichloroethene	58	
5-01-4	Vinyl Chloride	3	U	124-48-1	Dibromochloromethane	2	U
5-00-3	Chloroethane	3	U	79-00-5	1,1,2-Trichloroethane	2	U
75-09-2	Methylene Chloride	4	U	71-43-2	Benzene	58	
7-64-1	Acetone	3	BU	10061-02-6	Trans-1,3-Dichloroproene	2	U
5-15-0	Carbon Disulfide	2	U	110-75-8	2-Chloroethylvinylether	2	U
75-69-4	Trichlorofluoromethane	2	U	75-25-2	Bromoform	1	U
75-35-4	1,1-Dichloroethene	63		74-95-3	Dibromomethane	0.9	U
5-35-3	1,1-Dichloroethane	2	U	764-41-0	Trans-1,4-dichloro-2-butene	2	U
540-59-0	1,2-Dichloroethene (total)	2	U	108-10-1	4-Methyl-2-Pentanone	3	U
67-66-3	Chloroform	2	U	96-18-4	1,2,3-Trichloropropane	2	U
07-06-2	1,2-Dichloroethane	1	U	591-78-6	2-Hexanone	2	U
4-88-4	Iodomethane	2	U	127-18-4	Tetrachloroethene	2	U
107-02-8	Acrolein	2	U	79-34-5	1,1,2,2-Tetrachloroethane	1	U
07-13-1	Acrylonitrile	2	U	97-63-2	Ethyl methacrylate	1	U
8-93-3	2-Butanone	2	U	108-88-3	Toluene	61	
71-55-6	1,1,1-Trichloroethane	1	U	108-90-7	Chlorobenzene	60	
56-23-5	Carbon Tetrachloride	1	U	100-41-4	Ethylbenzene	1	U
08-05-4	Vinyl Acetate	3	U	100-42-5	Styrene	2	U
75-27-4	Bromodichloromethane	2	U	1330-20-7	Total Xylenes	1	U
78-87-5	1,2-Dichloropropane	1	U				

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

Sample Number
SL-2MSD

VOLATILE ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: DATACHEM LABS Case No: 0587

Lab Sample ID No: EK3085MSD QC Report No:

ample Matrix: SOIL Contract No: 3018

ata Release Authorized By: Date Sample Received: 08/15/91

VOLATILE COMPOUNDS

Concentration: LOW

Date Extracted/Prepared:

Date Analyzed: 08/22/91

Conc/Dil Factor: 1. pH

Percent Moisture: (Not Decanted) 10

AS Number		ug/Kg		CAS Number		ug/Kg	
74-87-3	Chloromethane	4	U	10061-01-5	cis-1,3-Dichloropropene	2	U
74-83-9	Bromomethane	2	U	79-01-6	Trichloroethene	57	
5-01-4	Vinyl Chloride	3	U	124-48-1	Dibromochloromethane	2	U
5-00-3	Chloroethane	3	U	79-00-5	1,1,2-Trichloroethane	2	U
75-09-2	Methylene Chloride	4	U	71-43-2	Benzene	55	
7-64-1	Acetone	3	BU	10061-02-6	Trans-1,3-Dichloroproene	2	U
5-15-0	Carbon Disulfide	2	U	110-75-8	2-Chloroethylvinylether	2	U
75-69-4	Trichlorofluoromethane	2	U	75-25-2	Bromoform	1	U
5-35-4	1,1-Dichloroethene	62		74-95-3	Dibromomethane	0.9	U
5-35-3	1,1-Dichloroethane	2	U	764-41-0	Trans-1,4-dichloro-2-butene	2	U
540-59-0	1,2-Dichloroethene (total)	2	U	108-10-1	4-Methyl-2-Pentanone	3	U
67-66-3	Chloroform	2	U	96-18-4	1,2,3-Trichloropropane	2	U
07-06-2	1,2-Dichloroethane	1	U	591-78-6	2-Hexanone	2	U
4-88-4	Iodomethane	2	U	127-18-4	Tetrachloroethene	2	U
10 2-8	Acrolein	2	U	79-34-5	1,1,2,2-Tetrachloroethane	1	U
07 13-1	Acrylonitrile	2	U	97-63-2	Ethyl methacrylate	1	U
8-93-3	2-Butanone	2	U	108-88-3	Toluene	60	
71-55-6	1,1,1-Trichloroethane	1	U	108-90-7	Chlorobenzene	58	
6-23-5	Carbon Tetrachloride	1	U	100-41-4	Ethylbenzene	1	U
08-05-4	Vinyl Acetate	3	U	100-42-5	Styrene	2	U
5-27-4	Bromodichloromethane	2	U	1330-20-7	Total Xylenes	1	U
78-87-5	1,2-Dichloropropane	1	U				

B - Compound was detected in the QC blank.

< - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

MEMORANDUM

DATE: October 8, 1991

TO: Steve Skare, Project Manager, E & E, Chicago, IL

FROM: Jane Malkin, TAT-Chemist, E & E, Chicago, IL

SUBJ: **Inorganic Data Quality Assurance Review,** Carrico Drums, washington, IN

REF: Analytical TDD: T05-9108-802 Project TDD: T05-9108-004
Analytical PAN: EIN0761AAA Project PAN: EIN0761SAA

The data quality assurance review of 2 soil samples and 4 drum samples collected from the Carrico Drum site in Washington, Indiana has been completed. Analysis for priority metals by ICP and AA methods was performed by Data Chem, Salt Lake City, Utah.

The 2 soil samples were numbered SL1 and SL2, and the 4 drum samples were numbered ND1 through ND4.

Data Qualifications:

I. Sample Holding Time: Acceptable.

The samples were analyzed within the 6 months holding time from the date of collection allowed for metal samples and within 28 days holding time allowed in the case of mercury.

II. Calibration

A. Initial Calibration and Calibration Verification: Acceptable

Inductively coupled plasma (ICP): Initial calibration was performed with a blank and one standard. All results were within 90 - 110% of the true standard value. No contamination above the instrument detection limit (IDL) was detected in the initial calibration blank.

B. Continuing Calibration: Acceptable

All continuing calibration results were within the control limit of 90 - 110% for the metals. No contamination above the IDL was

detected in the continuing calibration blank.

III. Blanks: Acceptable.

Method blanks were prepared and analyzed each day with the samples. No contamination above the IDL was detected.

IV. Interference Check Sample Analysis: Data not available.

V. Error Determination:

Spike Recoveries: Data not available.

VI. Determination of Bias

Duplicate Sample Analysis: Acceptable.

All relative percent difference (RPD) were within the control limit of 65 - 135%.

VII. Optional Additional QC

Laboratory Cotrol sample analysis: Data not available.

VIII. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality control Guidance for Removal Activities" (OSWER Directive 9360.4-01, april 1990)..

Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Form EPRS-A
Page 1 of 3
Part 1 of 1

Date 8/29/91
Agency Identification Number S91-0587-AF
Account No. 03018

Ecology & Environmental, Inc.
208 South La Salle Street
Chicago, IL 60604
Attention: Jane Malkin

Telephone (312) 201-3790

Sampling Collection and Shipment

Sampling Site _____ Date of Collection August 12, 1991

Date Samples Received at DataChem August 14, 1991

Analytical Results

Parameter Name / Analysis Date / Method / Prep Method	Units	Field Number / Lab Number	SL 1 EK 3080	SL 2 EK 3081	REAGENT BLK					LOD/LOQ ** Detection
Antimony (Sb) 08/20/1991 6010 [1] 3050 [1]	µg/g		ND*	ND*	ND*					10
Arsenic (As) 08/20/1991 6010 [1] 3050 [1]	µg/g		ND*	ND*	ND*					10
Beryllium (Be) 08/20/1991 6010 [1] 3050 [1]	µg/g		ND*	ND*	ND*					1.
Cadmium (Cd) 08/20/1991 6010 [1] 3050 [1]	µg/g		2.	ND*	ND*					1.
Chromium (Cr) 08/20/1991 6010 [1] 3050 [1]	µg/g		26.	16.	ND*					1.
Copper (Cu) 08/20/1991 6010 [1] 3050 [1]	µg/g		93.	150	ND*					1.
Lead (Pb) 08/20/1991 6010 [1] 3050 [1]	µg/g		220	120	ND*					2.
Nickel (Ni) 08/20/1991 6010 [1] 3050 [1]	µg/g		21.	9.	ND*					1.

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
[1] Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Analyst: Lavan T. Jensen

Reviewer: Robert R. Bowe

Laboratory Supervisor: Michael P. Beesley

DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Date 8/29/91
Agency Identification Number S91-0587-AF
Account No. 03018

Analytical Results

Parameter Name / Analysis Date / Units / Method / Prep Method	Field Number / Lab Number	SL 1 EK 3080	SL 2 EK 3081	REAGENT BLK					Limit of Detection
Selenium (Se)									
08/20/1991	µg/g	ND*	ND*	ND*					10.
6010 [1] 3050 [1]									
Silver (Ag)									
08/20/1991	µg/g	ND*	ND*	ND*					1.
6010 [1] 3050 [1]									
Thallium (Tl)									
08/20/1991	µg/g	ND*	ND*	ND*					10
6010 [1] 3050 [1]									
Zinc (Zn)									
08/20/1991	µg/g	430	160	ND*					1.
6010 [1] 3050 [1]									
Mercury (Hg)									
08/20/1991	µg/g	ND*	0.17	ND*					0.05
7471 [1]									

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
] Analyses completed on or before this date.

** Parameter not analyzed (See comments page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page).

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

DATA CHEM LABORATORIES

ENVIRONMENTAL WASTE REPORT

Date 9/30/91
Agency Identification Number S91-0587-GF
Account No. 03018

Ecology & Environmental, Inc.
208 South La Salle Street
Chicago, IL 60604
Attention: Jane Malkin

Telephone (312) 201-3790

Sampling Collection and Shipment

Sampling Site _____ Date of Collection August 12, 1991

Date Samples Received at DataChem August 14, 1991

Analytical Results

Parameter Name / Analysis Date / Method	Units / Prep Method	Field Number / Lab Number	ND-1 EK 3076	ND-2 EK 3077	ND-3 EK 3078	ND-4 EK 3079	REAGENT BLK			* Limit of Detection
Antimony (Sb) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			10
Arsenic (As) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			20
Beryllium (Be) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			0.5
Cadmium (Cd) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			0.5
Chromium (Cr) 08/27/1991 6010 [1]	mg/L BOMB [1]		5.	12.	ND*	12.	8.			5.
Copper (Cu) 08/27/1991 6010 [1]	mg/L BOMB [1]		14.	8.	ND*	16.	ND*			5.
Lead (Pb) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			10
Nickel (Ni) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	6.	ND*	11.	ND*			5.

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
[1] Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Analyst: John T. Kershisnik

Reviewer: Lavan T. Jensen

Laboratory Supervisor: Brent E. Stephens

DATA CHEM LABORATORIES

ENVIRONMENTAL WASTE REPORT

Date 5/30/91
Agency Identification Number S91-0587-GF
Account No. 03018

Analytical Results

Parameter Name / Analysis Date / Method	Units / Prep Method	Field Number / Lab Number	ND-1 EK 3076	ND-2 EK 3077	ND-3 EK 3078	ND-4 EK 3079	REAGENT BLK			* Limit of Detection
Selenium (Se) 08/27/1991 7010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			10
Silver (Ag) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			1.
Thallium (Tl) 08/27/1991 6010 [1]	mg/L BOMB [1]		ND*	ND*	ND*	ND*	ND*			30
Zinc (Zn) 08/27/1991 6010 [1]	mg/L BOMB [1]		16.	35.	17.	6.	18.			5.
Mercury (Hg) 08/20/1991 7470 [1]	mg/L		ND*	ND*	ND*	ND*	ND*			0.001

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
[1] Analyses completed on or before this date.

** Parameter not analyzed (See comments page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page).

ATTACHMENT C

Redacted-information not relevant to the selection of the removal action.